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From the DG's Desk

Dear Readers,

The current world population of over 6 billion is likely to reach 8 billion by 2030 AD and around 11 billion by 2050 thus posing a formidable challenge to sustainable food security. One of the most effective ways to solve the food problem is to enhance the productivity using the advances in science such as exploitation of heterosis.

Realizing the importance of hybrid vigour, the Indian Council of Agricultural Research (ICAR) launched the project "Promotion of



Research and Development Efforts on Hybrids in Selected Crops" in 1989. Under this project, significant progress was made including development and release of 35 rice hybrids including Pusa RH 10, the first superfine grain aromatic rice hybrid; several single-cross hybrids in maize including a MAS derived Vivek QPM 9; MAS derived downy mildew-resistant pearl millet hybrid HHB 67; *desi* cotton hybrids, *rabi* sorghum hybrids; safflower hybrids; castor hybrids and improved the first Indian mustard hybrid NRCHB 50. In mustard, wheat and pigeon pea, excellent progress was made in development of perfect male sterility and fertility restoration system, which was a major bottleneck, paving the way for hybrid development in these crops. In cotton, the success of *Bt* technology can be largely attributed to hybrids, which now covers more than 8 million ha area in our country. However, in spite of the remarkable output in hybrid research and development, the coverage under crop hybrids is low and is a matter of concern.

Heterotic genes responsible for elevating crop yields are now being sought using genomics, particularly transcriptomics, but with contradictory results. As heterosis is an environmentally modified quantitative phenotype, genomic analyses alone will not suffice. Future research should focus on integrating genomic tools in a framework of comprehensive quantitative trait locus (QTL)-based

Developing partnership in varying domains between public-public and public-private, for research and commercialization of hybrid technology.

phenotyping, followed by map-based cloning. This 'phenomics' approach should identify loci controlling heterotic phenotypes, and improve understanding of the role of heterosis in evolution and the domestication of crop plants.

Internationally, a Heterosis-Related Gene Database (HRGD) has been designed to manage the output of comparative transcriptomic studies related to heterosis among major agricultural crops, providing publicly available query and analysis platform for practical data mining. The database contains information concerning over 5,000 differentially expressed genes (DEGs) among the hybrid-parent tissue panels from rice and other genomes of major cereal crops collected from published literatures. Annotated relevant genes from manually extracted information include not only gene sequences, genomic structures, and functional annotations but also empirical expression data generated based on various large-scale genomic methods.

In this endeavour following areas would require pinpointed research and development support:

- Enhancing level of heterosis by bringing in much-needed genetic diversity in hybrid breeding oriented source germplasm.
 - Diversification of male-sterility system to minimize likely vulnerability specifically to biotic stresses.
 - Accelerated efforts for improvement of parental lines and thus hybrids with improved quality traits and resistance to biotic and abiotic stresses.
 - Development, specifically, by exploiting allelic and non-allelic interaction through effective cross-combination for moisture-stressed situation, salt-affected conditions, heat and cold tolerance and various fragile eco-systems.
 - Intensified research efforts for parental line and hybrid development befitting conservation agriculture.
 - Hybrids are known for their efficient root system. With modern tools and techniques including sensors, far greater effort is required on parental line and hybrid development with efficient root and the root system.
 - Accelerated efforts specifically quality considerations of various products and processes befitting varying market needs.
 - Intensified efforts for development of parental lines and hybrids for developing multi-purpose hybrids, viz. in case of sorghum, pearl millet, maize, for food/feed, fodder, fuel, fibre production.
 - Exploitation of apomictic genes for harnessing fruits of hybrid vigour obviating the need for seed replacement year after year.
- Development of agronomy and seed production technology for parental line multiplication and hybrid seed production in new potential areas.
 - Developing partnership in varying domains between public-public and public-private, for research and commercialization of hybrid technology.
 - Developing far greater infrastructure for foundation seed production of parental lines and having effective mechanism of hybrid seed production.
 - Ensuring availability of quality seeds through various mechanisms including innovating with petrol pumps and other outlets in rural areas.
 - Large-scale training of farmers for hybrid seed production at Block/Taluka level to meet the local demand.
 - Ensuring cost-effective parental line seed production and its uninterrupted supply by having adequate cold-storage facilities.
 - Revisiting standards for quality hybrid seed production befitting different regions in the country.
 - Preparing seed production atlas for various crops looking to potential pockets including disease-free production areas.
 - Ensuring quality seed availability by putting stringent quality control measures and quality law enforcement to arrest proliferation of spurious seed.
 - Ensuring a healthy competition and discouraging monopoly among seed producing and supplying agencies for having quality and price check.
 - Harmonization of standards and quarantine requirements to capitalize on our strengths to address hybrid seed market requirement in Asian and African countries.

We firmly believe that to meet the ever increasing needs, hybrid culture in agriculture, irrespective of crops and commodities need to prevail to bring much needed sustainable productivity enhancement. The hybrid technology facilitated with modern biotechnologies would be one of the most relevant technologies for agricultural transformation. In fact, contrary to the belief, if parents are carefully developed, cross combinations effectively made and evaluated, exploitation of allelic and non-allelic interaction in form of heterosis would be providing greater resilience and enhanced sustained productivity and production over the varietal threshold in fragile and harsh environments, be it biotic or abiotic.



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WORKSHOPS, MEETINGS, SEMINARS, SYMPOSIA, CONFERENCES

Bio-pesticides: Stakeholders' Perspective



New Delhi, 26 April 2009. An International Conference on 'Bio-pesticides: Stakeholders' Perspective', organized by The Energy and Resources Institute (TERI) and Society of Promotion and Innovation of Bio-pesticides, was inaugurated by His Excellency Governor of Haryana, Dr A R Kidwai, at Stein Auditorium, India Habitat Centre Complex. He said such conferences are extremely important in the context of sustainable agriculture, environmental protection, eco-restoration and climate change, human- and animal- health issues. He also released *Abstract: 5th International Conference on Bio-pesticides; Stakeholders' Perspective*.

Dr Mangala Rai, Secretary (DARE) and DG (ICAR), said that the theme of International Conference is highly significant at a time when Indian agriculture is looking towards economic solutions to the various biotic stresses in field as well as horticultural crops. He focused on Microbial control of crop pests in India, Bio-pesticides, Vector control, Use of parasitoids and predators in pest management, Stakeholders, perspectives etc. He added the need of linking

stakeholders', policy and regulatory issues and commercialization in his Keynote address.

Some of the recommendations are as follows:

- Besides defining the efficacy, cfus etc. defining the ideal abiotic factors for microbial biopesticides is essential for label claims
- The registration protocols, quality control and regulation for biopesticides need to be simplified
- There is an urgent necessity to have on-the-spot technical audit of biopesticides production facilities of commercial firms
- Develop uniform quality control for manufacturing of biopesticides to be used by ASEAN countries
- Provide clear guidelines for farmers on use of pheromone traps for monitoring population
- Replication of establishment of entomophage parks in as many regions as possible, would restore the biodiversity and promote *in situ* conservation of parasitoids and predators
- Use of nanotechnology for delivering system of biopesticide
- Systematic search for discovery, isolation and identification of microbial control agents
- Understanding the mechanism of action of indigenous knowledge on scientific basis
- There is a need of protection of IPR and maintenance of patents
- Proper multi-location field testing and evaluation in the target region should be carried out before recommending the products
- It should be guaranteed that the quality of various biopesticide products would be stable for a reasonable period of time.

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Yak Husbandry: Challenges and Strategies

Dirang, 22 April 2009. Mr Tabom Bam (Chief Secretary, Government of Arunachal Pradesh) inaugurated 3-day International Conference on 'Yak Husbandry: Challenges and Strategies' organized by the National Research Centre on Yak on 20 April 2009 at the institute in West Kameng District of Arunachal Pradesh in which more than 150 delegates from different parts of India and abroad participated. In his inaugural address, the Chief Secretary explained how yak farming is an eco-friendly and economically important traditional technology in high altitude ecosystem. He appealed the world community to conserve this endangered species because it is part and parcel of social and cultural fabric of tribal yak herdsman living in difficult hilly terrains of Himalyan belt.

Dr K.M. Bujarbaruah (Deputy Director-General, Animal Sciences, ICAR) chaired the inaugural function and expressed his concern over the decline in yak population. He said that concerted research efforts are needed for conservation and multiplication of this species. He appealed to the scientists to develop

a package of practice covering feeding, health and management for enhancing the productivity and profitability for the resource poor yak rearers.

The technical sessions on different aspects of yak husbandry and a farmers' meet were held and focused recommendations drawn were presented in the plenary session.

Recommendations

1. *In-situ* and *ex-situ* conservation and genetic characterization is to be carried out.
2. Enhancing the bioavailability of nutrients through strategic supplementation.
3. Popularization of technology on value addition of yak products.
4. Research on embryo biotechnology, semen freezing and artificial insemination in yak to be taken up.
5. Impact of climate change on yak production and reproduction to be studied.

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9th Agricultural Sciences Congress held at SKUAST-K



Srinagar, 24 June 2009. The 9th Agricultural Science Congress, jointly organized by the Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K) and National Academy of Agricultural Sciences (NAAS), was held at Srinagar between 22 and 24 June 2009. The theme of the Congress was "Technological and Institutional Innovations for Enhancing Agricultural Income".

A total of 592 delegates from almost all the states of the country including Jammu and Kashmir attended the 3-day Congress. The delegates included, among others, Secretary (DARE), and Director-

General (ICAR) Deputy Directors-General, Assistant Directors-General, Vice-Chancellors of SAUs, Directors/Vice-Chancellors of ICAR Institutes/Deemed Universities.

His Excellency the Governor of Jammu and Kashmir (Chancellor SKUAST-K) Shri N.N. Vohra, was the Chief Guest at the inaugural function. He said that in the national perspective the Congress will view possible strategies for bringing about greater synergy between policy-makers, agricultural research and development institutions, extension agencies and farming community to carry the fruits of research from "Lab" to "Land" within given timeframes. *Jenab* Omar Abdullah, Chief Minister (Pro-Chancellor, SKUAST-K), the Guest of Honour, stressed the need for profitability and sustainability of agriculture, and in this regard exhorted upon the scientific community to create greater awareness about knowledge, skills and techniques to enhance profitability and quality of foodgrains, so that farmers can earn respectable income.

Dr Mangala Rai, Secretary (DARE) Director-General (ICAR) presided over the function and said that for maximization of environmental, social, economical, livelihood, equity and to advance all-inclusive

Meet on groundwater utilization

Udaipur, 29 April 2009. The 3-day meeting on 'Groundwater Utilization' was held on 27 April 2009 at the Maharana Pratap University of Agriculture and Technology. Dr A. K. Singh, Deputy Director-General, Natural Resource Management, ICAR was the 'Chief Guest' and inaugurated the programme. The *Annual Report, 2008-09 of AICRP on Ground Water Utilization* was released by the Chief Guest during the inauguration.

Dr Singh elaborated the importance of groundwater and the exploitation being made in terms of quality and quantity owing to Green Revolution Technology in most parts of India. He emphasized on water quality issues and effect of climate change on groundwater recharge. He elaborated about the development of gray blocks in India along with contamination of drinking groundwater with fluoride and arsenic in some parts of the country. He also highlighted the need of improved management practices and better maintenance for conservation

of good quality groundwater which is the backbone of the Nation.

Dr Ashwani Kumar, Director, WTCER, Bhubaneswar, focused on 'Optimum Utilization of Groundwater Use to Groundwater Utilization'. He stressed upon the need of enhancing water utilization efficiency and multiple uses of water to meet the future needs.

During the Technical Session of the Chief Scientists Meet 2009 of AICRP on 'Groundwater Utilization' Dr Ashwani Kumar insisted that the recommendations of the research programmes may be of use to the planners at state level as well as to be adopted by the beneficiaries. He emphasized about the use of waste/low quality water in agriculture and its contamination to the groundwater and food and also stated the importance of generation of databases with a comprehensive approach for further research.

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benefits, it would be desirable to plan and manage all resources in an integrated manner. To address various challenges he suggested a multi-pronged strategic intervention with focus on enhancing investment in agriculture, developing human resource and effective knowledge management system, enhancing productivity and competitiveness of farm produce, creating processing, product development and value-addition opportunities in the actual areas of production, promoting farmer-consumer linkages together with providing an enabling policy environment for our farming community.

More than 50 lead papers by professional peers were presented during the Congress on 8 sub-themes, viz. (i) Technological and institutional innovations for enhancing agricultural income in hills and mountains; (ii) Technological and institutional



innovations for enhancing agricultural income in intensive irrigation production system; (iii) Technological and institutional innovations for enhancing agricultural income in coastal production system; (iv) Technological and institutional innovations for enhancing agricultural income in rainfed production system; (v) Innovations in post-harvest handling, processing and management to increase agricultural income; (vi) Innovations in policy, infrastructure, marketing and trade for enhancing agricultural income; (vii) Innovations in quality and safety assurance for enhancing agricultural income; and (viii) Innovations in seed and planting material supply for enhancing agricultural income.

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Sensitizing KVKs stakeholders

Kanpur *Dehat*, 16 April 2009. Dr K D Kokate (DDG, Agricultural Extension) chaired 2-day interaction that was organized for orientation of the Director of Extension Education and the Programme Co-ordinators of the Krishi Vigyan Kendras of Uttar Pradesh and Uttarakhand from 15 to 16 April 2009. The objective of the interaction was to 'sensitize the stakeholders about the challenges of XI Five-Year Plan and required strategy'.

The successful cases of large-scale technology dissemination like Gladiolus production in district Muzaffarnagar; Peach-based farming system in district Saharanpur; Dry farming-based systems in district Chitrakoot; Resource conservation technology in district Jaunpur, Basti and Pratapgarh; Summer groundnut in district Mainpuri; Beekeeping in district Aligarh; Sodic land reclamation and rehabilitation in district Sultanpur and Unnao were presented and it was desired that such cases should be promoted by all the Krishi Vigyan Kendras. Dr Kokate emphasized for sustaining the Krishi Vigyan Kendras system by adequate focus on technology interventions and strategies, achieving targets of training and demonstrations, introduction of high-tech agriculture and horticulture, technology tourism, human resource development, impact analysis of training and other programmes, developing crop cafeteria, using inventory of agricultural technologies in developing action plan, filling up vacant posts, developing mechanism of Farmers' Scientist Forum to bring the farmers closer to the Krishi Vigyan Kendras. Taking up appropriate action for proper functioning of ATIC for better services to the farmers was also stressed. Dr Kokate also visited KVK, Kanpur *Dehat* and a village of Fatehpur district where technological interventions on *Jowar*, *Chari* and *Summer urd* were taken-up by the KVK.

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Research and Higher Education: Indian challenges

New Delhi, 22 May 2009. Dr C D Mayee, Chairman, Agricultural Scientists' Recruitment Board, chaired the function on XVI Dr B P Pal Memorial Lecture, in the memory of Dr B P Pal, a doyen agriculturist of his era, at Dr B P Pal Auditorium, IARI, New Delhi and Dr P Balaram (Director, Indian Institute of Science, Bangalore) was the speaker of the function.

Dr H S Gupta (Director, IARI) introduced the speaker and talked about series of Lal Bahadur Sashtri Dr B P Pal Memorial Lecture and their corresponding speakers to the august gathering.



Prof. Balaram shared his rich and vast research experiences in his XVI DR B P Pal Memorial Lecture on 'Research and Higher Education: Indian Challenges'. He focused on Fragmentation v/s Integration, Measurement and Assessment of Science mentioning Academic Science (uncertain utility), Applied Science (Clear goal and targets) and Assessment of Scientific activity. Besides, he highlighted the 'Diminishing Core of Universities', 'Pathways to Reform', 'National Knowledge Commission's Recommendations of Higher Education, 2007', 'Challenges in Creating World Class Education', 'Creating an Ambience', 'Parameters of Institutional Performance' etc.

Dr C D Mayee congratulated Prof. Balaram whose Institute was going to complete 100 years by the end of May 2009 and recalled that IARI has already completed 100 years in 2005. Dr Mayee added 'the need of science talent search job' and expressed his worries as he said 'otherwise we may miss the bus of development'.

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Mango Seminar

Bengaluru, 25 April 2009. Mango Seminar was conducted at IIHR in collaboration with Doordarshan Kendra, Bangalore. About 200 mango growers from different parts of Karnataka participated in this Seminar. There was detailed interaction between the farmers and scientists on various problems faced by the mango growers and other issues related to mango crop. The questions were raised on important aspect of mango cultivation and the resource person/scientists answered all the questions during the seminar. The programme was live telecast for two hours on Doordarshan Kendra, Bengaluru.

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Multiple gains from horticulture

Ludhiana, 28 April 2009. A seminar on 'Insect Pest and Disease Problems on Fruit Crops and their Management' was held at the Punjab Agricultural University (PAU), organized by PAU's Department of Horticulture and sponsored by the National Horticulture Mission. Dr Manjit Singh Kang, Vice-Chancellor, PAU, was the Chief Guest, who said that in Punjab the total area under fruits is nearly 62,000 ha and production is about 10.6 lakh tonnes annually. Kinnow is the major fruit of Punjab which is now occupying 32,000 ha. Besides, guava, mango, ber, and pear are other important fruits of Punjab. He specified that PAU is laying emphasis on quality nursery production, weed management, agro-techniques like spacing, drip irrigation and post-harvest handling including waxing and grading. Modern cold storage and processing facilities need to be created to curtail nearly 30% post-harvest losses, said Dr Singh. Citrus has an important place in the horticultural industry of Punjab having a vast domestic market. Citrus cultivation can help the farmers in increasing their incomes. It also helps the agricultural diversification of Punjab. These were some of the observations made during the one-day seminar attended by around 100 fruit growers, scientists, horticulturists, nursery men and persons from processing industry.

Dr P.S. Minhas, Director of Research, discussed the availability of good quality plants as well as marketing and said that Punjab Government has established a Citrus Council to solve such problems and promote citrus cultivation to the state in a big way. Dr D.S. Dhillon emphasized that modern tools and techniques of information and communication technology can play useful role in feeding the farmers with latest knowledge, and further informed that PAU has developed need-based technologies which are well received by farmers.

In the Technical Session, various issues pertaining to fruit cultivation were deliberated – strategies for insect and pest management of citrus and other fruits; citrus research: problems and future strategies; overview of disease management approach in fruit crop; status and management of fruit mite, pesticide residue on fruits and role of honeybee in horticulture.

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Maintain the traditional knowledge and skill

Jharnapani, 25 April 2009. Professor Anil K. Gupta, Executive Vice-Chairman, National Innovation Foundation (NIF), said that the contribution of community as well as individual is very vital for maintaining the traditional knowledge and skill generation after generation and these must be recognized in a formal way.

He was addressing the 1-day interactive session on 'Documentation and patenting of Indigenous Technical Knowledge (ITK)' held in Medziphema by National Innovation Foundation in collaboration with National Research Centre on Mithun, Jharnapani, Nagaland. Professor A.K. Gupta also felt that to preserve and popularize the traditional knowledge and skill of different tribes of Nagaland these need to be documented and mapped through extensive survey and documentation of ITKs under a collaborative programme with Krishi Vigyan Kendras, Government departments and researchers at university and ICAR institutes. Professor Gupta assured the help of the NIF in validation and patenting of these ITKs. Professor Anil K. Gupta has visited different laboratories of the National Research Centre on Mithun, Jharnapani, Nagaland and highly acclaimed the working atmosphere of the institute where there is a blending of excellence and social responsibility, which will create a new bench mark of accountability.

Earlier, Dr Chandan Rajkhowa, shared his experience about the wisdom and rich knowledge of the tribal population living in this unique geographical area located in north-eastern part of our country for a healthy and comfortable living. He also mentioned various ITKs that have been generated by different tribes and their ancestors.

The Programme was attended by Programme co-ordinators/Subject Matter Specialists of different Krishi Vigyan Kendras of Nagaland, Director (Agriculture Government of Nagaland), Dean and faculty members of SASARD, Nagaland University.

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Prioritizing intervention in rainfed areas for sustainable livelihood

New Delhi, 23 April 2009. Dr S S Acharya, Former Chairman (CACP) chaired the seminar on 'Prioritization of Intervention in Rainfed Areas for Sustainable Livelihood', jointly sponsored by the National Centre for Agricultural Economics and Policy Research and National Rainfed Area Authority (NRAA), at NASC Complex. There were 6 Technical Sessions, viz. Characterization and prioritization of rainfed areas; Identification and prioritization of development interventions; Identification and prioritization of development intervention in low performing high potential areas; Harnessing potential of development interventions; Harnessing potential of emerging opportunities; and Institutional and policy options for improving livelihood opportunities. The concluding session was on the topic—Way forward for prioritization of opportunities in rainfed areas. Dr J. S. Samra, CEO and Chairman of National Rainfed Area Authority, focused on better efficiency in ICT Model, Insurance/Safety Credit system, Irrigated agriculture etc.

Recommendations

- Investment on rainwater harvesting should be given priority in rainfed areas.
- A basket of technological interventions for land and water management across different rainfall regime need to be assessed based on the socio-economic considerations of the rainfed farmers.
- Rice-fallow system is low-performing and high-potential area in central and eastern India. Options were identified for raising pulses, oilseeds, cereals, fodder, horticultural crops, etc. Pilot projects may be developed by the NRAA for efficient utilization of rice fallow systems.
- Horticulture, livestock and fisheries sectors need to be developed with due consideration of linking farmers with the remunerative markets.
- NRAA may constitute a working group for developing a draft common property resources policy for consideration.
- The afforestation programme for fringe forest area under JFM should focus on conserving water.
- Pilot projects, in a cluster based approach may be developed in livestock based farming system through consortia approach.
- Alternative employment generation opportunities need to be explored and appropriate capacity strengthening programme may be developed.
- NRAA constitute a consortia of institutions to provide more insights for developing rainfed areas.

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AICRP on Farm Implements and Machinery

New Delhi, 27 June 2009. Farm Machinery Manufacturers' Meet was jointly organized and Dr Mangala Rai, Secretary, DARE and DG, ICAR, emphasized that there was no machine available in 70's however, now we have machines for all operations except for critical operations such as sugarcane harvesting, cotton picking etc. He said that the zero tillage technology, which is covering about 3.2 million ha area, saves about Rs 700 crore annually. Similarly, there has been a large-scale use of laser land levelers and custom hiring of grain combines. He said that the tractor use is highest in the country even though the landholding is low. We need to develop the machines for SRI, dryland agriculture, fish netting, silage making and concentrated feed block, pruning and protected cultivation. He made special mention of maintaining BIS standards, spare parts availability, service centres, machines for arresting erosion and intensification of agriculture.

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Co-ordination Committee Meeting of AICRP on PHT

Trivandrum, 31 May 2009. The Coordination Committee Meeting of AICRP on PHT was held at Central Tuber Crops Research Institute, from 29 to 31 May 2009. The post-harvest losses are reduced to a considerable extent and the credit goes to the scientific community for their contribution in development of scientific equipments and procedures, and various agencies involved in supply chain management starting from farmers to the consumers. There is necessity of better post-harvest management for tuber crops. The global-economics-slow down will have unforeseen effects on small farmers of our country, hence, the scientist should take up challenging and target oriented projects, for take instance, Agro-Processing Centres (APCs) in the production catchment and also put the efforts to work collectively with wisdom to achieve inclusive growth. The Sectoral PIs of areas of food grains, horticultural crops, livestock produce and *jaggary* and *khandsari* presented detailed progress of ongoing projects and new proposals along with the technical programmes. Dr. Anil Kumar Dixit made a

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Sensitization of hill farmers and officials for Protection of Plant Varieties and Farmers' Rights Act, 2001

Almora, 2 April 2009. Dr L.M.S. Palni (Director, Govind Ballabh Pant Institute of Himalayan Environment and Development, Kosi-Katarmal, Almora) inaugurated the Sensitization Workshop on Protection of Plant Varieties and Farmers' Rights Act, 2001, organized for hill farmers, officials of Department of Agriculture, Uttarakhand, scientists of KVKs of Kumaon Division, Scientific official of NGOs and Vivekananda Parvatiya Krishi Anusandhan Sansthan (VPKAS), at the Experimental Farm of VPKAS, Hawalbagh, Almora. Dr Palni, in his opening remarks urged the scientists for documentation of indigenous technical knowledge. He said that since time immemorial farmers have been raising seeds for their own use and shared it with neighbours and others. No legal protection was attempted at that time. In the market-based economy, today the IPR has emerged as a very important issue and inventors are getting benefits by patents. He emphasized on the need of transforming hill agriculture market-oriented sustainable agriculture.

Dr A. K. Srivastava (Director, VPKAS), in his opening remarks urged hill farmers and government officials to come forward for registration of plant varieties. He said that the Act also recognizes and rewards farmers, community of farmers, particularly the tribal and rural communities, who are engaged in conservation, improvement and preservation of genetic resources of economic plants and their wild relatives. Therefore we all should know the various provisions in the Act.

During the technical session, different aspects covered were: Protection of Plant Varieties and Farmers' Rights Act including registration of plant varieties on the basis of DUS testing, farmers varieties and their conservation, commercialization of plant varieties, farmers' rights under the Act, impact of Act on varietal development and seed production, intellectual property management in technological extension: new issues in agricultural research.

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Harnessing arbuscular mycorrhizae for biofertilization in horticultural crops

New Delhi, 5 May 2009. Dr H.P. Singh (DDG, Hort.) chaired the workshop on AMAAS sub-project 'Harnessing Arbuscular Mycorrhizae for Biofertilization in Horticultural Crops' held at New Delhi. He said that there is need to have network project on Mycorrhizae as it was not covered in any of the themes in the on-going AMAAS network project. He mentioned the following four areas for research under the Mycorrhizae sub-project:

- (i) diversity analysis of mycorrhizae in different horticultural crop-based cropping system,
- (ii) diversity analysis of functional groups (PGP bacteria + biocontrol agents) of microbes in relation to mycorrhizal infection,
- (iii) interaction of arbuscular mycorrhizae with beneficial soil microbes, and
- (iv) mass-multiplication studies of AMF.

Prof. D.K. Arora (Director, NBAIM) gave the outline of the objectives, programmes, theme areas and the progress made in the AMAAS network project. He also informed the background for initiating the sub-project on 'Harnessing Arbuscular Mycorrhizae for Biofertilization in Horticultural Crops'. He emphasized that the project must have novel approaches and aim to propel the current use of mycorrhizae from nursery to field conditions for which ecological research is necessary.

Dr George V. Thomas (Director, CPCRI and PI) overviewed Mycorrhizae sub-project, the research work done at various ICAR Institutes, the objectives, the technical programme, milestone and expected outcome of the project. He added the novel aspects like studies on Mycorrhizae Helper Bacteria (MHB), mass-production of mycorrhizae using root organ culture and the advanced biochemical and molecular studies that have been included in the project.

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Annual Group meeting for enhancing production and productivity of sunflower and castor

Junagadh, 23 May 2009. A 3-day Annual Group Meeting of Sunflower and Castor was started at Junagadh Agricultural University, Junagadh (JAU), Gujarat on 21 May 2009, to review the results of research conducted during 2008 and formulate the strategies to further increase the production and productivity of these crops.

The Chief Guest, Shri Dileepbhai Sanghani, Minister for Agriculture and Cooperation, Government of Gujarat, complimented the agricultural scientists of Gujarat for attaining a growth rate of 14% at the end of X Five-Year Plan. He attributed the success of Gujarat to Agri-business policies adopted by the State Government and developing the irrigation sources. Shri Sanghani advised the scientists to intensify research on value-addition of castor and on climate change for increasing profitability and productivity of castor.

Dr V.D. Patil, ADG(OP), ICAR, was the Guest of Honour and he pointed out that oilseeds are being replaced by other remunerative crops due to less minimum support prices.

Dr B.K. Kikani, Vice-Chancellor, JAU, Junagadh, presided over the meeting. He expressed that development of short to medium duration varieties/hybrids in sunflower resistant to major diseases and insect pests by adopting bio-technological measures with multidisciplinary approach is the need of the hour. Dr D.M. Hegde, Project Director, Directorate of Oilseed Reserach, said that though good progress has been made in oilseed sector, the country is unable to meet the demand of vegetable oils because of increase in consumption of oil. Shortage of seed and unfavourable prices were the bottlenecks in sunflower production during 2008-09. Necrosis remain to be the unsolved problem in sunflower and of late, powdery mildew and mealybug in some isolated pockets have emerged as the new pests. *Botrytis* and wilt complex continue to be major problem in castor.

Recommendations

Sunflower

- Sunflower hybrid KBSH 53 with 42-44% of oil content and tolerance to powdery mildew was released for Karnataka. This hybrid is better than KBSH 44, an earlier released hybrid.
- PSFH 569 hybrid, developed at AICRP (Sunflower) centre, Punjab Agricultural University, Ludhiana

identified for cultivation in Punjab.

- Avoid *rabi* sorghum cultivation succeeding sunflower or soybean under rainfed conditions of Marathwada region of Maharashtra.
- Productivity of *rabi* sunflower can be improved succeeding *kharif* legumes like mungbean or urdbean in Marathwada region. For sunflower succeeding *kharif* legumes, apply 60 kg N/ha under irrigated conditions for realizing optimum seed yield.
- In northern Karnataka, sunflower productivity in *rabi* can be increased succeeding *kharif* cowpea.
- For the control of defoliators, viz. *Spodoptera*, *Trichoplusia*, in sunflower in southern Karnataka, apply profenophos @ 0.05% or chlorpyriphos @ 0.05%.
- For management of defoliators and head-borer in Marathwada region of Maharashtra, apply profenophos @ 0.05% or chlorpyriphos @ 0.05% or endosulfan @ 0.07%.

Castor

- GC 3 a wilt-resistant variety of castor having 30.5% yield superiority to the check was released for Gujarat.
- A new hybrid YRCH 1 (DPC 9/TMV 5) with red stem, triple bloom, spiny capsule developed at AICRP (Castor) centre, Yethapur was approved by SVRC, Tamil Nadu for state release.
- Intercrop normal planted castor with 1 or 2 rows mungbean in Rajasthan to get higher net returns (Rs 56,540/ha and Rs 54,974/ha) and B:C ratio (3.58 and 3.44) without adversely affecting castor yield.
- In Jodhpur region of Rajasthan (Mandor), weed is the most important production constraint for castor followed by fertilizer application.
- For effective and economic management of wireworm in castor, seed treatment with carbaryl 50 WP or carbosulfan 27.18 DS or imidocloprid 70 WS @ 5g/kg seed or thiamethoxam 70 WS @ 3g/kg seed was recommended in Saurashtra region of Gujarat (Junagadh).
- Spray acephate 0.05% or dimethoate 0.03% or endosulfan 0.07% for effective and economic control of thrips in castor in Saurashtra region of Gujarat.

Based on the thorough deliberation, the technical programmes were formulated for 2009-10.

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Farm Implements and Machinery

Gangtok, 6 May 2009. The AICRP on Farm Implements and Machinery, Central Institute of Agricultural Engineering, Bhopal organized a 3-day meeting of its Co-ordination Committee at College of Agricultural Engineering and Post-harvest Technology, Central Agricultural University, Gangtok.

Dr S.N. Puri, Vice-Chancellor, thanked Dr Mangala Rai, Secretary (DARE) and DG, ICAR for providing AICRP centres to cater the needs of North-Eastern hills region. He gave an overview of the agricultural and social problems of North-Eastern hills region.

Dr M.M. Pandey, Deputy Director-General (Agricultural Engineering), ICAR, emphasized that mechanization is one of the important ways to bring down the cost of cultivation by efficient use of inputs, and AICRP on Farm Implements and Machinery is an excellent system for promoting mechanization in the country. He also stressed on the need of development of package of equipment for different crops and power sources.

Dr S. K. Tandon, Assistant Director-General (Agricultural Engineering), ICAR, informed the house that about 150 equipment have been developed under the AICRP on Farm Implements and Machinery and 50% of them have been commercialized which are being manufactured in the country. He emphasized the need of development of machines for straw management, sugarcane mechanization, cotton and horticulture mechanization.

The technical programme of 24 centres of AICRP on Farm Implements and Machinery for 2009-10 was finalized.

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Inter-zonal interface—first of its kind at Zone VIII

Shillong, 2 June 2009. The Zonal Project Directorate, Zone VIII, Bangalore, and Tamil Nadu Agricultural University, Coimbatore, jointly organised 2-day Inter-Zonal Interface Meeting for the officials of NEH

Region working under Zonal Project Directorate, Zone III, Shillong, from 1 to 2 June 2009. The programme consisted of (i) Sensitization programme on “e-Agri-Tech Portal and ICT tools in Extension and e-Learning” on 1 June 2009 at Coimbatore and (ii) field visit to KVK, Erode. The participants from North-East region included Vice-Chancellor, Asom Agricultural University, Directors of Agriculture (Sikkim and Nagaland), Deputy Directors of Agriculture (Manipur and Arunachal Pradesh), Zonal Project Directors (Zones VIII and III), Director of Extension Education, UAS, Dharwad, and 25 Programme Co-ordinators of Krishi Vigyan Kendras from NEH Region.

The Tamil Nadu Agricultural University is operating a number of e-extension and e-learning projects which overcome the barrier in technology transfer by receiving timely feedback from the user groups. During the programme, participants were enriched with TNAU AGRI TECH PORTAL, Dynamic market information for agri-horti produces, Expert system for agriculture and animal husbandry, mass media and multimedia application in technology transfer, activities of Domestic Market and Export Intelligence Cell, e-Learning initiatives, *e-Velanmai*, Precision Farming and System of Rice Intensification. Participants visited the e-Extension Centre, Community Radio Station and farmers, residence to have an overview of the state-of-art-facility.

On the second day of the programme, the participants visited KVK, Erode. During the interaction session, Programme Co-ordinator, KVK, Erode highlighted major activities and experiences of KVK. The team also visited Malguthipuram Doddi village of Talavadi Block in Erode District and got acquainted with Integrated Farm Development components implemented in the village. The model experimented in this village have spread to 53 villages in the district, the experience replicated in other parts of the state through Government departments and NGOs. The team interacted with Rosemary Growers Committee, Tamaraikarai which is functioning since 2002. Cooperative model is followed in this approach, and it involves marketing, value-addition for the livelihood development of small growers and tribal in the hilly region.

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Public-Private partnership in manufacturing and promotion of farm implements

Port Blair. To improve the availability of farm implements, Central Agricultural Research Institute (CARI) has signed a Memorandum of Understanding (MoU) with M/S Shree Hari Fabricators, Port Blair, for manufacturing of different farm implements recommended by the CARI. On this occasion, Dr R.C. Srivastava (Director, CARI) termed it as an example of Public-Private Partnership for the benefit of farmers at large. He also expressed that the partnership will help in increasing the availability of farm implements in Andaman and Nicobar Islands. The farmers are therefore informed that all above recommended implements can be procured on availability/ order basis from Agricultural Technology

Information Centre of CARI.

The institute in its efforts to promote the use of farm implements for paddy cultivation and post-harvest technology of coconut has developed improved and evaluated a number of farm implements, viz. conoweeder, cage wheels, pedal thresher, coconut dehusker, solar copra dryer and biomass fired copra dryer etc. These implements help in saving time, energy and manpower, and thereby enhance the net returns to a farmer.

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National Agricultural Innovation Project

First Annual Workshop of NAIP

Izatnagar, 15 April 2009. Dr K V Raman (Ex Director, NAARM) inaugurated 2-day First Annual Workshop of NAIP (Component 4) at IVRI on 14 April 2009. He emphasized the importance of time in achieving the targets set for different sub-projects of NAIP. The 125 participants belonged to 60 sub-projects of the Component- 4 and there were 16 presentation by the CPI's of different sub-projects, representing cell 1 and cell 2 sub-projects. Dr A Bandyopadhyay, National Co-ordinator, NAIP, explained the objectives of workshop and asked the CPI's to discuss difficulties being felt by them, so that solution could be sorted out for running the project.

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NAIP launches subproject on value chain of lac and lac-based products for domestic and export markets

Ranchi, 30 April 2009. An NAIP Sub Project on "A Value Chain of Lac and Lac-Based Products for domestic and export markets" was launched on 30 April 2009, at the Indian Institute of Natural Resins and Gums, Ranchi, which is the Lead Centre. Dr A.K. Singh, DG, Administrative Training Institute, Ranchi (Jharkhand) launched the Project. Dr J.P. Mittal, National Coordinator, NAIP, Dr B. Baboo, Director, IINRG, CPI and CCPIs of the project, Scientists of IINRG, farmers and industrialists associated with the project etc. were present during Project Launch

Programme. The project has three partners, i.e. M/s Tajna Shellac Pvt. Ltd., Khunti, M/s Gupta Brothers (Shellac), Bundu and Nav Bharat Jagriti Kendra (NBJK), Khunti (Jharkhand). The project aims to improve the present lac value chain comprising lac production, processing, storage, packaging, export and quality parameters with the objective of augmenting production, profitability and income of lac growers and ultimately increasing export earning for the country. The project duration is of 3 years and 6 months with a total budget of Rs 227.48 lakh. A booklet on this NAIP Sub project was also released during the Project Launch Programme.

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Launching Workshop of NAIP Project

Nagpur, 8 May 2009. The launching workshop of the National Agricultural Innovation Project (NAIP) on "Georeferenced Soil Information System for Land Use Planning and Monitoring Soil and Land Quality for Agriculture" was held at National Bureau of Soil Survey and Land Use Planning (NBSS&LUP) on the 8th May 2009.

The project under component 4 of Basic and Strategic resource is being implemented in a consortium mode with NBSS and LUP, Nagpur as Lead Centre and CICR, Nagpur, NBAIM, Mau, Uttar Pradesh and DWM, Bhubaneswar as partners. The total outlay of the project is Rs 265 lakh.

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International Linkages

Second meeting of Inter-Governmental Core Group on Agricultural Research and Extension of SAARC Countries

Dehra Dun, 8 May 2009. A 2-day meeting of the inter-government core group on agricultural research and extension, jointly organized by the National Centre for Agricultural Economics and Policy Research and the Central Soil and Water Conservation Research and Training Institute started on 7 May 2009. Delegations from Afghanistan, Bhutan, Bangladesh, India, Nepal and Sri Lanka attend the meeting to review the progress and plan for future activities in agricultural research and extension in SAARC countries.

Mr Raiz Hamidullah, Director (ARD), SAARC, opened the meeting on behalf of the Secretary-General, SAARC. Dr V N Sharda, Director, CSWCR&TI welcomed the delegations from SAARC countries. Dr A K Singh, DDG (NRM) chaired the proceedings. Dr P K Joshi, Director, NCAP coordinated the organization of the meeting.

Work Plans and Issues

- Success stories on agricultural practices in SAARC member countries
- Networking trials and adoption of varieties and material
- Partnerships in improvement of livestock breeds
- Strengthening collaboration between SAARC countries in research-extension-farming linkages
- Food safety and quality standards for agriculture produce
- New proposals on sub-regional basis: (i) climate change mitigation and adaption measures; (ii) animal genetic resource conservation (especially buffalo); and (iii) documentation of indigenous traditional knowledge in member states.

Research Managers from Uganda visit PAU

Ludhiana, 4 June. A 4-member delegation of Research Managers, comprising Dr Cyprian Ebong, Director Quality Assurance, Ms Regina Musaaazi, Economist, Dr Japheth Magyembe, Coordinator Competitive Grants Scheme and Dr George A. Maiteki, Director, Ngetta

Zonal Agricultural Research and Development Institute, Uganda visited Punjab Agricultural University. Dr Ebong, leader of the delegation, said that they were on a visit to PAU to learn about its system of research, education and transfer of technology. The research extension-farmer-industry linkage of the university is well known, he said adding that they would explore the possibility of collaboration with PAU for training and scientific exchange in the area of nano-technology, biotechnology and natural resource conservation. Dr Ebong said that PAU has a unique feature of linking culture with scientific agriculture and that the different museums maintained on the campus are a landmark.

The team held discussions with the Vice-Chancellor, PAU, Dr Manjit Singh Kang, regarding the organizational set-up of PAU and its mechanism of technology generation and transfer of technology to farmers. Dr Kang said that PAU will be willing to collaborate with the National Agricultural Research Organization, Uganda, in areas of mutual interest in agricultural research, education and transfer of technology. He informed that PAU has already signed MoUs with a number of organizations within the country and abroad. Dr Ebong appreciated that the active liaison that the state farmers maintain with PAU scientists is exemplary.

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Mutual benefits: PAU signs academic accord with US

Ludhiana, 5 June. Punjab Agricultural University (PAU) signed a Memorandum of Understanding (MoU) with University of Wisconsin (UW), Madison, USA, to develop a collaborative liaison of mutual benefits and for jointly undertaking educational and scholarly activities for 5 years at first instance. The MoU was signed by the Vice-Chancellor, PAU, Dr Manjit Singh Kang and the Chancellor, University of Wisconsin, USA. Terming the event as an important stride towards international partnership development, Dr Kang said that this team work will be based on symbiosis and synergy rather than competition with each other. He said that it will be a win-win state for PAU as well as for University of Wisconsin, USA. Each will gain through working as one and there will be a lot for students to learn, he said.



Dr P.S. Minhas, Director of Research, in his remarks said that the collaboration envisaged in the accord will aim to strengthen teaching, research and outreach to encourage improved techniques in management of agricultural systems, to facilitate and enhance academic co-operation for quality assurance, institutional development, information spreading and exchange of students, faculty and staff. He further

informed that organization of training courses, seminars and conferences involving faculty and students of both the institutes, development of improved farm technologies and facilitating their adoption by farmers are also covered under the MoU.

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Celebrations/Farmers' Corner

National Academy of Agricultural Sciences celebrates Foundation Day

New Delhi, 4 June 2009. Shri Sharad Pawar, Union Minister of Agriculture and Consumers Affairs, Food and Public Distribution inaugurated the Foundation Day of the National Academy of Agricultural Sciences (NAAS) and appreciated the efforts of the academy and said that the academy has emerged as a vibrant national level body devoted to agricultural sciences. Fellowship of the academy includes globally recognized scientists. He said that dairy and fisheries have great potential in rural development. Shri Pawar focussed on serious disparity between agriculture and non-agriculture, and urban and rural India. The per worker income in non-agriculture sector has increased by more than double in the last 25 year but in agriculture sector the increase has been marginal. At the Opening Ceremony of the Foundation Day, he released the book *State of Indian Agriculture*, and said that it is a timely publication, ensuring national and household nutritional security.

Dr Mangala Rai, President NAAS and Secretary, DARE and Director-General, ICAR, gave a brief introduction of the publication *State of Indian Agriculture*. He stated that it is an attempt to provide critical analysis of the overarching issues in Indian agriculture today. This is the first publication in this annual series by the academy. The publication is the outcome of a series of brainstorming sessions spread over 14 months and active involvement of more than 130 contributors. Agricultural scenario, factors responsible for deceleration in total productivity, state of availability of farm inputs and their

management, agricultural biosecurity, agricultural price policy, investment and subsidies in agriculture, emerging challenges for science and technology generation and element of research preparedness are the main issues covered in the publication.



Dr M S Swaminathan, Member of Parliament (Rajya Sabha), and immediate past President of the NAAS, congratulated the National Academy of Agricultural Sciences for its achievements and said our aim has to be—every scholar an entrepreneur.

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XXV Convocation of Govind Ballabh Pant University of Agriculture and Technology

Pantnagar, 21 April 2009. His Excellency Governor of Rajasthan, Shri S.K. Singh, was the Chief Guest at the XXV convocation of the Govind Ballabh Pant University of Agriculture and Technology, Pantnagar. In his convocation address he said that global climate change and genetically modified seeds will affect the future of farming and agriculture productivity. Stressing on the fact that providing sufficient food for the world population is getting to be a puzzle and problem, Shri Singh indicated that heat, light and water are major drivers of productivity, and climate can become a cancer for agriculture. Further, Shri Singh talked about the public fears and farmers' concern about genetically modified food which represents a great ethical as well as policy change. He wanted to be sure of the option to be selected. He emphasized upon all the degree recipients to be ready for struggles ahead and asked them to commence their professional life fully confident that they can change the world.

In the Convocation more than 1,000 student were given the degrees by the Chief Guest.

Later, His Excellency Governor of Uttarakhand, Shri B.L. Joshi, congratulated the parents of students who

received their degree and exhorted the students to take the challenges awaiting them in different fields of life. He said that despite the shrinking share of agriculture sector (17%) in Indian economy, majority of population continues to depend on agriculture. Shri Joshi focussed on micronutrient deficiencies, depleting soil-carbon levels and hidden hunger, and make Indian agriculture profitable, sustainable and competitive.

Dr S.P. Tiwari, DDG (Agricultural Education) while addressing the gathering elaborated on the initiatives undertaken by the ICAR towards modernizing the agriculture education and research infrastructure in the country. While acknowledging the seminal contribution of Pant Varsity in ushering Green Revolution and in participating Council's programmes. Dr Tiwari remarked that the fundamental orientation of agriculture has to be towards building entrepreneurship.

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III Convocation of Uttar Banga Krishi Viswavidyalaya celebrated

Coochbehar, 6 May 2009. His Excellency, Governor of West Bengal and Chancellor of the University, Shri Gopal Krishna Gandhi presided over the III Convocation at Uttar Banga Krishi Viswavidyalaya and advised the degree recipients to contribute their knowledge gained in the university for the betterment of the farming community of India. He expressed concerned over the change in climate, global warming and soil erosion problem. He stressed efforts on the part of the university to make research on sustainability of income for small farms, to make farmers less dependent on money lenders and protect them from the control of pesticide and fertilizer shops.

On this momentous occasion, Dr S P Tiwari [Deputy Director-General (Education)], delivered the convocation address as chief guest. He requested the students to make efforts to increase the productivity and production of agricultural systems through a system wide approach and also to enhance overall farm prosperity.

The Vice-Chancellor, Professor Asit Kumar Das, urged the policy makers, Government of West Bengal and



ICAR for generous support as this university is in the initial stages of establishment and needs special attention.

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IX Convocation of Rajasthan Agriculture University



Bikaner, 2 May 2009. H.E. Governor of Rajasthan and Chancellor of RAU, Shri S.K. Singh, appreciated the efforts of the university in addressing the needs of the 70% geographical area of Rajasthan which mainly falls under arid and semi-arid regions. Rajasthan Agriculture University organized its IX Convocation in which Prof. Shankar Acharya, a leading Policy Economist and presently Member, Board of Governors, Indian Council for Research on International Economic Relations, New Delhi, was the Chief Guest. Delivering the Convocation Address, Prof. Acharya expressed that India's economy has demonstrated considerable resilience, in part, mainly on the strength of its agriculture sector. Dr Pratap Narain, Vice-Chancellor, Rajasthan Agriculture University highlighted the salient achievements of the University over the past 1 year. In all, 576 degrees (436 graduate, 119 masters' and 21 doctoral) were conferred to scholars from the Faculties of Agriculture, Veterinary and Animal Science, Agri-business Management and Home Science. The University also honoured 19 scholars with gold medals for their academic accomplishments.

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International Day for Biological Diversity, 2009

New Delhi 22, May 2009. Dr C D Mayee (Chairman, ASRB) chaired the function of 'International Day for Biological Diversity, 2009', organized by the ICAR, National Biodiversity Authority and Ministry of Environment and Forests, at the National Bureau of Plant Genetic Resources, Pusa Campus. Among other prominent personalities were Chief Guest -Shri B S

Parsheera (Special Secretary, Ministry of Environment and Forests, Government of India), Dr P L Gautam (Chairman, National Biodiversity Authority, Government of India), and Dr S K Sharma (Director, NBPGR) etc.

Dr S K Sharma said that to increase understanding and raise awareness of biodiversity issues, the United Nations declared 22 May as the International Day for Biological Diversity (IDB). This year the convention on Biological Diversity proclaimed 'Invasive Alien Species' as the theme of IDB, 2009.

There were 3 presentations on 'Invasive Alien Species: Plants', 'Invasive Alien Species: Animals including Fishes and their Pests' and 'Invasive Alien Pests and Pathogens of Plants'

A film on 'Esa kyon hota hai?', based on 'Invasive alien species: a threat to biodiversity' was screened. Dr P L Gautam said that India is one of the mega biodiverse countries of the world and like many other countries, faces threats of Invasive Alien Species. It is reported that 40% of Indian flora is alien, of which 25% have become invasive. He added that the task of the addressed theme of IDB, 2009 is enormous and highly challenging and strong national framework along with active public participation would go a lay way in managing the problems posed by the Invasive Alien Species.



Shri B S Parsheera opined that eradication of Invasive Alien Species is one of the priority areas of convention on Biological Diversity. We can achieve this goal by developing unified national system for regulation of introduction and spread of invasive species to neighbouring areas and by checking unintended introduction.

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World Veterinary Day celebrated

Bud Bud, 25 April 2009. World Veterinary Day was celebrated by the Krishi Vigyan Kendra of the Central Research Institute for Jute and Allied Fibres (ICAR). On this occasion, an animal health camp was organized at Simnori village. In this camp, 271 goats were vaccinated against *peste des petits ruminants*. The cattle, goats and ducks (total 50) were treated and free packets of region-specific mineral mixture, calcium supplements and anthelmintics bolus were distributed among animal raisers with the help of veterinary pharmaceuticals companies.

One day seminar on “Bird flu and its public health importance” was also organized at KVK campus jointly with district Veterinary Association where 70 farm-families from nearby villages participated. In this seminar, Dr F. H. Rahman, Programme Co-ordinator of KVK addressed the farmers and encouraged them to adopt integrated farming system in their existing situation. The session ended with a film show on “Cattle breed upgradation” for sensitizing the animal raisers.

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KVK, Kanyakumari promotes high-value honey production in a tribal village

Kanyakumari. The Krishi Vigyan Kendra, Kanyakumari, has undertaken entrepreneurship development programme on high-value honey production at the Orunooramvayal tribal village, to improve the livelihood and socio-economic status of the tribal community.

Beekeeping is a subsidiary or supplementary/or complementary enterprise and thereby provides additional income to the farming community. The tribal area has diverse flora, viz. forest trees, spices, plantation crops, medicinal plants, and hence, honey produced from this region is of superior quality. The present squeeze method of honey extraction yields honey with inert matter and of poor quality. Therefore, KVK organized training-cum-demonstration programme on honey production by using a honey extractor and value-addition with herbal products at the Orunooramvayal tribal village for 100 identified beneficiaries.

Demonstration was initiated with five beehives along



with bee-colonies to the tribal groups. Series of training programmes and regular demonstrations were conducted on beehive installation methodology, maintenance and feeding of bee-colonies during off season, pest and disease management, swarming methods (removal of extra colonies), extraction of honey by using honey extractor, processing of honey, value-addition with herbal products like pepper, ginger and *thulasi*, bottling and marketing through co-operative societies.

The tribal group harvested about 20-25 kg honey from each hive/season and marketed through co-operative societies. The income generated thus, amounted to Rs 2,500/ hive/season (@ Rs 100/kg honey).

The tribal groups are now engaged with their own beekeeping activity. Besides, they are also maintaining the beehives of the untrained bee keepers and charge Rs 250/hive/season. Owing to the impact of KVK intervention, the technology has spread over the entire targeted village as well as the nearby tribal villages, improving the socio-economic status of the tribal community.

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KVK organised State level workshop on jack fruit “Panasam 09”

Kozhenchery, 29 May 2009. Two days state level workshop on “Jack fruit: the underexploited fruit of Kerala - Challenges in Supply Chain Management” was started by Krishi Vigyan Kendra, Pathanamthitta (Kerala) in association with National Horticulture Mission and National Agricultural Bank for Rural Development on 28 May 2009 at Charalkunnu,



Christian Education Centre, Kozhenchery (Kerala) to explore the market potential of the fruit.

The workshop was aimed in developing a blend of scientific and traditional knowledge on varieties, propagation and potential use of jackfruit and successfully built a strategy for supply chain management on a participatory mode. The workshop included five themes, viz. (i) genetic variability and propagation, (ii) processing, (iii) preservation and value addition, (iv) jackfruit and its potential in health and nutrition, and (v) indigenous technical knowledge on jack and sustainable marketing strategies. Each theme included minimum of five invited papers. A special session on experience sharing of farmers/entrepreneurs was arranged. Exhibition of the products prepared from jackfruit by entrepreneurs from various parts of the state was another attraction of the workshop.

Any type of jackfruit (either *Varikka*-local variety with hard texture of bulb and long-shelf life or *kuzha* - local variety with soft and fibrous texture of bulb having short shelf life) weighing about 10 kg with recovery of 40 to 50% cleaned ripped bulb can yield processed product worth average net income of Rs 600 to 800. This much net income could be obtained with most wasted genotype *Kuzha* while the other genotype *Varikka* having larger consumer acceptance as ripped fruit is marketed as such to other places where it is not cultivated and unavailable enabling the farmers to get an average of income Rs 25 to 50/fruit.

The workshop succeeded in providing a platform to make people aware of the hidden potential of the fruit.

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(Continued from page 8)

Co-ordination Committee meeting of AICRP of PHT

presentation on how to assess the impact of Technologies developed under AICRP on PHT. Dr Bangali Baboo, Director, IINRG Ranchi, pointed out problems and prospects related to natural resins and gum industry in India and expressed the need for intervention by Agricultural Engineers.

Dr R T Patil made presentations on two proposals namely (i) Network project on post-harvest mechanization in horticulture crops, and (ii) Regional network for post-harvest management and value addition of horticulture in SAARC countries and activity to be taken up in India were discussed. The network project on post-harvest mechanization in horticulture crops was based on the discussion and recommendations emerged in the interactive meeting of post harvest technology conducted by Dr H P Singh, DDG (Horticulture), at IIHR, Lucknow in September, 2008. The objectives of this network project are (i) To identify the technology, which needs refinement and up-scaling for PHM and value addition of horticultural crops, (ii) Development evaluation and refinement of technologies/equipments for commercialization, (iii) Transfer of appropriate technology/equipments/tools to the end users for loss reduction and value addition of horticultural crops. The main objectives of this regional network project among the SAARC countries are: (i) To identify and share the knowledge and post-harvest processing technologies across the SAARC countries; (ii) To adapt, evaluate and disseminate post-harvest processing and value addition technologies for fruits in SAARC countries; (iii) To develop effective marketing linkages of processed products; (iv) To assess the impact of the adapted technological packages at project sites; and (v) To ensure product quality and safety in the adoption of package of technologies.

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Good agricultural practices, such as conservation agriculture, can reduce the carbon footprint and the adverse environmental impacts of biofuel production—just as they can for extensive agricultural production in general.

Source: Food and Agriculture Organization of the United Nations

Celebrating World Veterinary Day

Izatnagar, 28 April 2009. Dr Dharmeswar Das, Director, Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh, inaugurated a Free Vaccination Programme, to mark World Veterinary Day. The Programme was organized by the Students' Council of Indian Veterinary Research Institute at Referral Veterinary Polyclinic of IVRI. On this occasion, vaccination against rabies was done in 340 dogs and necessary diagnostic services provided for other domestic animals.

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Laboratory-cum-Administrative Complex of Central Institute of Temperate Horticulture inaugurated

Srinagar, 22 June 2009. Laboratory-cum-Administrative complex of the Central Institute of Temperate Horticulture was inaugurated by Dr Mangala Rai, Secretary (DARE) and Director-General (ICAR). On arrival, a warm welcome was accorded to the Chief Guest, Dr Mangala Rai and other dignitaries by Director and other staff members of the Institute, followed by planting of a chinara tree by Dr Rai and *Rhododendron* by Dr H.P. Singh (DDG, Horticulture) as a remembrance of their visit to the Institute. The Chief Guest also inaugurated the CITH museum. On this occasion, an inaugural function was held in the Conference Hall which was chaired by Dr Mangala Rai. Prof. Nazeer Ahmed (Director, CITH), gave a formal welcome to the Chief Guest and other dignitaries and also presented a brief report on Institute, followed by release of four publications by Dr Rai. On this occasion, Prof. Abdul

Ahad Sofi (former Director, CITH), was also felicitated for his life-time contribution to CITH. Prof Anwar Alam, Vice-Chancellor SKUAST (Kashmir) spoke on temperate horticulture, and Dr H.P. Singh DDG (Hort.) highlighted the importance of Institute and its contribution to growth of temperate horticulture in the region. In the inaugural address of Dr Mangala Rai, praised the contribution of scientists and other staff members of CITH for development of the Institute in general and achievements made by CITH in the field of temperate fruits in particular. He assured all possible help for further growth of the institute and also pointed out some thrust areas and gave directions for future research and development works. Dr Mangala Rai and other dignitaries visited the experimental farm and the elite germplasm maintained at the farm.

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Observance of World Environment Day, 2009

Cochin, 5 June, 2009. The Central Institute of Fisheries Technology (CIFT) observed World Environment Day, 2009. Dr B. Meena Kumari (Director, CIFT) stressed the importance of observing World Environment Day and highlighted the CIFT's interventions in developing responsible and environment friendly Fishery technologies at a seminar on 'Environment and Fisheries'. The keynote on "Mediating Role of Technology and Regulation in Environment-Fishery Relationship" was addressed by Chief Guest, Dr V. Santhakumar. He pointed out the importance of improving the mobility among the traditional fishing community to other sectors to minimize the impact on resource and the enhancement of fishermen's living standards. Dr

Santhakumar also raised question that do regulations aimed at helping traditional fishing really help them? The discussion was also on 'Eco-friendly products from fish waste', Energy conservation and climate change', 'Hygiene and sanitation for clean environment', 'Environment friendly fishing' and 'Conservation vs Livelihood—the social and policy aspects'.

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Unique facility: 'SBI-KVK loan Window' opened at Kannur

Kannur, Kerala. To facilitate beneficiary farmers and entrepreneurs Krishi Vigyan Kendra, Kannur (Kerala) took initiative in collaboration with State Bank of India (SBI) and opened a 'SBI-KVK Loan Window' at KVK premises which offers hassle free credit facilities. With this facility, farmers and entrepreneurs who were benefited from KVK on technologies in agriculture and allied fields through vocational trainings and other income generating activities will be able to get credit facilities to start their vocations. In addition, they would be provided with information regarding subsidies from agencies like District Industries Centre.

The main target group of this facility is KVK farmers and farm women. With the introduction of this facility trainees could discuss future plan of action on reaping harvest of the technologies advocated by KVK trainers with the bankers on the spot. Initially the Loan Window would be opened once a week. State Bank of India has deputed an officer to man the counter so that farmers' needs could be well assessed both financially and technologically under the guidance of KVK. In addition, support for project preparation and loan processing would also be given at the 'SBI-KVK Loan Window'.

The Loan Window will open between 10:00 am and 5:00 pm on all working days as per the working schedule of the bank.

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Community fish smoking kiln demonstration in Arunachal Pradesh

Roing, 30 May 2009. Shri Chiliko Meto, Chairperson, Zilla Parishad, Roing, Arunachal Pradesh, inaugurated the COFISKI. After the inaugural session an interactive session was arranged with local fishermen and women. Very good feedback was received from the fishers who accepted the new technology and smoke curing of fish by hygienic and scientific methods.

The community fish smoking kiln is installed mainly for training-cum-demonstration purpose. This is also to cater needs of smoke curing of freshwater fish local fishermen and women at free cost.

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Fish Marketing Development Centre for hygienic fish marketing

Cochin, 2 June 2009. Dr B. Meenakumari, Director, Central Institute of Fisheries Technology (CIFT), Cochin, inaugurated a 'Fish Marketing Development Centre' at Pudimadaka, a traditional marine fish landing centre about 60 km south of Visakhapatnam. She stressed the importance of quality, and urged fishermen to adopt good sanitation and hygiene while handling fish. She also advised the fishermen to avail the training programmes being conducted by the CIFT on Sanitation and hygiene handling. She also distributed 'washable plastic sheets' to traditional women fish vendors. The centre has facilities for hygienic fish marketing and basic amenities like drinking water, washing area, place to rest etc. are provided. The centre was built by an NGO, District Fishermen Youth Welfare Association, with the funds provided by Oxfam-India Ltd, with the technical assistance and advice of CIFT Centre, Visakhapatnam. It has 22-fish vending platforms with granite slab convenient for easy cleaning and hygienic maintenance.

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World Environment Day, 2009

Marakanam, 5 June 2009. The Social Science Division of the Central Institute of Brackishwater Aquaculture (CIBA) co-ordinated Farmers—Scientists Meet on "Your Planet Needs You and Sustainable Brackishwater Aquaculture Technologies", at the World Environment Day Celebration. Dr A.G. Ponniah (Director, CIBA) highlighted the need for adoption of environment-friendly technologies, developed by the CIBA, and strongly advocated the promotion of domestic marketing to improve the nutritional and livelihood security of large number of people in India. He outlined different strategies for promotion of domestic fish marketing at farmers' level and asked the farmers to utilize the opportunities. About 150 participants including aqua-farmers, input dealers, aqua-consultants, representatives of private industries and officials of State Department of Fisheries and Krishi Vigyan Kendra, Tindivanam, participated in the event.

The experts discussions were on crab farming and fattening, profitable finfish farming, farm-made aqua-feeds, health management advisories and environmental technologies of CIBA. The farmers

expressed readiness to buy and adopt environment technologies in brackishwater aquaculture developed by CIBA, like Micro-Brackishwater Analysis kit and also requested for demonstration of bioremediation using sugarcane bagasse in their ponds. They expected the availability of printed materials of packages of technological recommendations as ready reference and for easy adoption. A field visit was

arranged in the afternoon to get the first-hand information on the adoption of successful small-scale aquaculture. This field-level interaction meeting paved way for link between the institute and farmers in conducting field trials on some of the major project initiatives in brackishwater aquaculture.

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HRD/Capacity Building/Awards

Empowering the farm women

Ujjain. A successful five-day training programme to generate new entrepreneurship on “Preparation of handicraft material” was conducted at village Jalalkhedi (District Ujjain) of Madhya Pradesh.

The main theme of the conducted training was to empower the farm women specially school drop-outs and newly married women for increasing the efficiency and capacity building for self-employment purpose. On the occasion of inaugural session, Dr A.D. Dixit (Programme Co-ordinator, KVK, Ujjain) emphasised on the importance of training programme for generating independence among rural participants through self-employments. Further he stated that rural women should always participate in such type of events which help in economic sufficiency.

Dr Rekha Upadhyay (Course Co-ordinator) motivated the farm women for upliftment of status in society by establishing small-scale enterprise using the skill and knowledge which they learnt in the training programme. The raw material was utilized on the basis of “best out of best” for preparing the household materials which is essentially used in day-to-day life, viz. different types of doormats, wall hangings, magazine holders, shopping bays, table clothes and phone/T.V. covers etc.

Based on ‘learning by doing and doing by seeing’ method, all the participants enthusiastically participated in each activity. The course curriculum comprised mainly three phases, viz. theory, practical and demonstration.

Total 20 school dropouts of village Jalalkhedi (Ujjain) were benefitted and empowered through Vocational Training Programme.

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Managing Bibliographical Research Information in Agriculture

New Delhi, 29 May 2009. Dr K.D. Kokate, DDG (Agricultural Extension) inaugurated 5-day training programme on ‘Managing Bibliographical Research Information in Agricultural and Allied Sciences’. The training was organized by Directorate of Information and Publications of Agriculture. at KAB I, Pusa Campus, from 25 to 29 May 2009 in which 10 personnel from different institutes, viz. CSSRI, Karnal; NCIPM, New Delhi; CIBA, Chennai; St. Xavier’s College, Tirunelveli; IARI, New Delhi; NBPGR, New Delhi; NCAP, New Delhi; NRC Citrus, Nagpur; IASRI, New Delhi etc. participated.

The course contents included Knowledge sharing in agriculture-ICAR efforts, Information Management, On-line Delivery of Information at DIPA and Developing e-products, Print versus e-Publishing, Role of NIC in Management of Research Information, Principles of Indexing and Abstracting, Editorial Procedure and Guidelines for Information Management, Development of Agricultural Literature in Hindi, Sale and Business Management of Print and e-product, an Introduction to CDs/ISIS Software of UNESCO, FAO Subject Categorization Scheme, Use of *AGROVOC Thesaurus*, Data Input Procedures and Guidelines, Input Checking and Data Export/Import, Software installation etc. Besides, the participants also interacted with the personnel of editorial, production and sales/business units in presence of Unit Heads to get an in-sight into the functioning of DIPA units.

Dr P K Joshi, Director, NCAP, New Delhi, presided over the concluding session.

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Farmers' field school on groundnut organized at Gadag district

Gadag, 24 April 2007. Krishi Vigyan Kendra, Gadag (Karnataka) organised season long Farmers' Field School in *rabi*/summer groundnut in Shingatarayanakere village of Mundaragi block in Gadag district of Karnataka. Organized under Agriculture Technology Management Agency (ATMA) by Krishi Vigyan Kendra, Gadag, the Field School was aimed at enhancing the productivity of Summer Groundnut through understanding agro-ecological situation in groundnut production system and adoption of cost effective technologies in summer groundnut with main focus on farmer to farmer extension mechanism. Under the programme, Front-Line Demonstration on Integrated Crop Management in summer groundnut was laid out and KVK facilitated 6 training sessions in different stages of crop growth. Training sessions were led by progressive farmers and KVK Scientists. ICM technologies demonstrated in the Field School were, TAG - 24 variety, optimum plant population, seed and soil treatment with *Trichoderma* and neem cake, nutrient management and management of leaf miner. Twenty six farmers participated in the school as students. The farmers could learn the skills involved in the production technology of summer groundnut.

As a part of Field School, a field day was organized in which scientists from University of Agricultural Sciences, Dharwad participated in the field day as recourse persons. Scientists had interaction with farmers on the demonstrated technologies. About 83 farmers participated in the programme.

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Farmers' field school on System of rice method

Krishi Vigyan Kendra Pudhuviralipatti, Perambalur. (KVK) Tamil Nadu organized Farmers' Field School (FFS) on System of rice (SRI) method of production system to revive paddy, as its cultivation suffered a lot due to recurring drought in Pudhuviralipatti village located in Alathur block of Perambalur district of Tamil Nadu.

The salient achievements of the Farmers' Field School on System of rice method are:

- water requirement of paddy reduced by 60%, attitudinal change of farmer from flooded field condition to moist field condition for paddy production, FFS farmers become expert in the field of SRI and started providing technical advice other fellow farmers, reduction in external input with less production cost,

- paddy yield was doubled that ensured further food security to the farmers,
- enhanced analytical capacity and experimenting attitude of FFS participants, and
- improved coherence among members to perform task jointly.

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International Day for Biological Diversity

Bengaluru, 22 May 2009. The United Nations has proclaimed 22 May day as the **International Day for Biological Diversity (IDB)** with a view to increase understanding and awareness on biodiversity issues. This year's theme was invasive alien species (IAS)—one of the greatest threats to biodiversity, and to the ecological and economic well being of society and the planet. On this occasion IIHR, Bengaluru arranged two invited talks on this year's theme. Dr R. Raghavendra Rao, Emeritus Scientist, Central Institute of Medicinal and Aromatic Plants (CIMAP) delivered a talk on 'Invasive alien plant species and their impact on Biodiversity of India' for the benefit of the staff of IIHR, Bengaluru in the auditorium. Dr Rao started with a definition of invasive alien species. He pointed out that, the threat to biodiversity due to invasive alien species was considered second only to that of habitat destruction. Nearly 40% of the flora in the country is alien species of which 25% were invasive. Dr Rao dealt in detail about the invasive alien plant species of India and how and when they entered India, their distribution and impact on Indian biodiversity with specific examples. The impact of alien plant species in North-East flora was illustrated by him with specific examples. He concluded his speech saying creating awareness among people, improving scientific infrastructure such as quarantine facilities and monitoring the trade are required to be taken up to check the spread of alien species. Dr Abraham Varghese, Principal Scientist (Agricultural Entomology), delivered another talk on Invasive alien animal species and their impact on biodiversity of India. In his talk he illustrated about pests entering into our country through various channels and its impact on biodiversity with some specific examples. He also elaborated on the Pest Risk Analysis and its relevance to pest management in different crops and geographical regions.

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Application of molecular and quantitative genetics in aquaculture and fisheries

Kausalyaganga. 21 June 2009. The Fish Genetic and Biotechnology Division of the CIFA conducted a Summer School on 'Recent advances in application of molecular and quantitative genetics in aquaculture and fisheries' between 1 and 21 June 2009. Prof. M.C. Dash (Environmentalist and Ecologist) was Chief Guest for the inaugural session. Dr A.E. Eknath, Director, CIFA also spoke on the occasion about the significance of summer school on the subject.

The course contents of the summer school included Role of molecular and quantitative genetics in the development; Mitochondrial DNA—tool for molecular phylogenetics in fish; Molecular markers and marker-assisted selection in aquaculture; Gene cloning and its application in stock improvement; Introduction to quantitative genetics and its application; Ideal procedure to produce quality carp seed and genetic aspect of hatchery management; Selective breeding and its application, Tagging and marking procedure in fish and shell fishes; Development of "Jayanti" rohu: lessons and experiences; Genome manipulation in fishes; Cryopreservation and its application to aquaculture; Stem cell technology; Immuno-diagnostics in fisheries and aquaculture; Nanotechnology; Microbial biotechnology; Nutritional biotechnology; Transgenic technology; Software analysis in molecular and quantitative genetics.

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Kisan Club Training Camp Scientific Interaction

Ludhiana, 4 June. A training camp for the members of Punjab Agricultural University Kisan Club was held in the Wheat Auditorium at the PAU campus. Giving details of the activities of the club, the Programme Co-ordinator, Dr T.S. Riar said that this event provides opportunities to participating farmers to interact with PAU experts. The interaction was on Protection of Plant Varieties and Farmers' Rights; Power system

for rural areas in Punjab; Agricultural Model of *Bhagat Dhanna Ji* which focuses on eco-friendly and cost-effective farming; Cultivation of Basmati rice; Export potential of Basmati rice; and Banks facilities for the farmers. The farmers were advised to have a linkage with PAU experts for getting the need-based advice from them. Farmers and farm-women from different parts of Punjab attended the meeting.

Dr S.P. Singh, former Vice-Chancellor of Guru Nanak Dev University, released the second edition of "*Jeeve Dharat Haryavli*".

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Training for Entrepreneurs on Post-Harvest Technology

Abohar. 15 May 2009. The training on 'Post-Harvest Technology for Rural Catchments for Farmers/Upcoming entrepreneurs from Asom' was organized at CIPHET, Abohar from 15 to 21 May 2009. It was sponsored by State Institute of Rural Development, Guahati (Asom). Eighteen Farmers/Upcoming entrepreneurs from different districts of Asom participated in the training programme. The training included lectures on 'Drying and dehydration of fruits and vegetables for value-added products, Development of value-added products from guava and other fruits, Processing and value-added product development from *aonla*, Shrink packaging of selected fruits and vegetables, Insect-pest management of stored grains, Pulses milling technology, Post-harvest losses and their control in fruits and vegetables, post-harvest management of fruits and vegetables and their by-products, cereals processing, project profile preparation and concept of agro-processing.' The training also included the practical classes on novel products from *aonla*, *ber*, guava, and pomegranate including demonstration of waxing plant. The participants were also exposed to different laboratory and field experiments. Besides, participants were also exposed to waxing and packaging plants of kinnow. Hi-tech nursery and scientifically managed farmers' orchards and food industry.

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OIE recognition to High Security Animal Diseases Laboratory

Paris, 29 May 2009. The High Security Animal Diseases Laboratory (HSADL) of Indian Veterinary Research Institute, Bhopal has been accorded the status of Office *International-des Epizooties* (OIE) Reference Laboratory for Avian Influenza. The status was conferred during the 77th General Session of World Organization for Animal Health, held between 24 and 29 May 2009 in Paris, France, by the International Committee headed by Prof. Steven Edwards of Biological Standards Division of OIE.

This recognition has been 9th in the World for Avian Influenza and 3rd in Asia after China and Japan. It is the resulted efforts of the ICAR authorities, official from DADF, MoA, IVRI and the contribution of the Scientists of the HSADL, IVRI, Bhopal. This achievement would act as an impetus for further growth of Animal Sciences Research of the country under agies of ICAR.

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Personnel

Visits

- Dr Mangala Rai (Secretary, DARE and DG, ICAR) visited Manila, Philippines from 14 to 17 April 2009 to participate in IRRRI BOT meeting at International Rice Research Institute, Manila, Philippines.
- Dr Mangala Rai (Secretary, DARE and DG, ICAR) and Shri A K Upadhyay (Additional Secretary, DARE and Secretary, ICAR) visited Turkey to see Turkey's Research Activities on Winter Wheat and Legumes in Turkey and to participate in ICARDA's BOT meeting and presentation Day at ICARDA (Hq) in Syria from 27 April to 3 May 2009.
- Dr Ajai Kumar, Director, DARE visited Indonesia during 27 to 29 April 2009 as a part of the delegation led by Secretary (Agriculture) to attend 1st Joint Working Group Meeting
- Dr Rakesh Kumar, Scientist (SS), CIFT, Cochin to Michingan State University from 1.5.2009 to 30.6.2009 for undergoing training in the field areas of "Green Knowout, Gene expression and regulation in food borne bacterial pathogens" under the Norman E. Borlaug Fellowship Programme 2008 under India-US Knowledge Initiative in Agriculture

Appointments

- Dr H S Gupta has appointed as Director, Indian Agricultural Research Institute, New Delhi on 1 April 2009
- Dr K D Kokate has joined as Deputy Director-General (Agricultural Extension) on 8 April 2009

ICAR Vichar Manch



New Delhi, 21 April 2009. Professor Anwar Alam (Vice-Chancellor, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir) shared his views on 'Gleanings in History on Human March towards on inclusive' society'.



New Delhi, 3 June 2009. Ms Shashi Mishra (IAS) shared her rich and vast experience on 'Issues on the back burner'.

- Dr S K Dutta has joined as Deputy Director-General (Crop Sciences) on 18 June 2009.

Retirements

- Dr D K Paul, Principal Scientist, ICAR (Hq.) retired on 30 April 2009.
- Dr K S Khokhar, Assistant Director-General (PIM) has been relieved on 10 June 2009 to join as Vice-Chancellor, CCS Haryana Agricultural University, Hisar
- Dr G C Tiwari, Assistant Director-General (EPD) retired on 30 June 2009.
- Dr B M C Reddy, Director, Central Institute of Subtropical Horticulture has been relieved on 30 June 2009.

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